

REMARKS

Claims 1-15 remain in this application. Claims 12-15 have been added. The Applicants respectfully request reconsideration and review of the application as amended above in light of the following remarks.

Before addressing the merits of the rejections based on prior art, the Applicants provide the following brief description of the invention. A first embodiment of the invention is directed to reducing electromagnetic interference (EMI) emanating from a computer enclosure. Computer enclosures are often divided into two compartments, a source compartment and an unshielded compartment. The source compartment contains a primary source of EMI, such as a computer processing unit (CPU), and is configured to prevent excessive EMI from emanating outside of the enclosure. The unshielded compartment contains components, such as disk drive components that have doors and/or openings formed therein. These components may permit EMI to leak from the enclosure through the openings formed within the components. The source compartment is typically separated from the unshielded compartment by a middle frame member ("midframe") and a riser card, and in some configurations, only a riser card. Riser cards typically have peripheral port sockets that face the unshielded compartment, and a cable is oftentimes plugged into the port sockets and connected to the component, such as the disk drive discussed above. The peripheral port sockets are connected to the source compartment by traces that pass through vias that are formed within the riser card. The traces are usually on a signal layer of the riser card, and undesirably act as antennae that receive EMI from the source compartment. The EMI is conducted from the traces to the port socket, through the cable, into the component, and eventually through the door of the component, until the EMI emanates to outside of the enclosure.

In the first embodiment of the invention, a riser card includes a ground layer that is interposed between the signal layer, having the traces on it, and the source compartment. The ground layer of the riser card reduces the amount of EMI,

transmitted by the EMI sources within the source compartment, that is received by the traces. As a result, the amount of EMI that is emanated from the enclosure is reduced.

The Examiner rejected Claims 1-11 under 35 U.S.C. § 102(b) in view of U.S. Patent No. 5,586,011 by Alexander ("Alexander"). The rejection is respectfully traversed.

Alexander is directed to a method for grounding a circuit board having ground layers, power layers, and signal layers. Alexander provides for metal plated vias (55), formed within interior portions of the circuit board, that are in electrical communication with signal layers of the circuit board. Metal pads (51) are formed on the vias (55), along top and bottom surfaces of the circuit board. This allows the signal layers to be in electrical contact with components that are on the surface of the circuit board, through the electrical pads (51) and the vias (55). The ground layers, however, do not cover the signal layers along portions where the signal layers are in electrical contact with the metal plated vias and the metal pads. (See 51 of Fig. 3.)

Claim 1, on the other hand, states that "one of the at least three ground layers is positioned . . . **to cover substantially all of any portion of the at least two signal layers that is connected to any device** in the unshielded compartment when the riser card is mounted in the computer enclosure." (Emphasis added.) Riser cards of Claim 1, therefore, include a ground layer that reduces EMI originating from an EMI source within the source compartment from being received by portions of a signal layer that is connected to a device in the unshielded compartment. As a result, the amount of EMI originating from the source compartment, conducted through the signal layer to the device within the unshielded compartment and out of the enclosure will be reduced.

Because circuit boards of Alexander do not include ground layers that cover substantially all of a portion of a signal layer that is connected to a device, if the circuit boards of Alexander were used as riser cards, they would not effectively reduce EMI originating from the source compartment from being received by the signal layers. The EMI would, thus, eventually be transmitted into the unshielded compartment and

emanate out of the enclosure. The Alexander circuit board does not include the claimed feature because there is no need for the circuit board disclosed in Alexander to reduce EMI transmission from one compartment to another. Circuit boards are typically orientated in a horizontal position and therefore divide an enclosure into top and bottom compartments. The components emitting EMI are typically in the top compartment, and there is typically no opening in the bottom compartment. Thus, there is no need to stop EMI from being transmitted from the top compartment to the bottom compartment, but only a need to stop EMI from emanating outside of the enclosure. The circuit boards of Alexander attempt to stop such emanation by grounding the entire circuit board. As a result, the Alexander circuit board does not disclose the Claim 1 feature showing that: "one of the at least three ground layers is positioned . . . to cover substantially all of any portion of the at least two signal layers that is connected to any device in the unshielded compartment when the riser card is mounted in the computer enclosure." In view of the foregoing, Applicants respectfully request that the Examiner remove the rejections of Claim 1, and Claims 2-11, which depend from Claim 1.

Claims 12-15 have been added to the application. Claim 12 is generally directed to the first embodiment of the invention discussed above. Because the art of record does not disclose the features of Claim 12, Applicants submit that Claim 12, and Claims 13-15, which depend from Claim 12, are in condition for allowance.

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In view of the foregoing, the Applicants respectfully submit that Claims 1-15 are in condition for allowance. Reconsideration and withdrawal of the rejections is respectfully requested, and a timely Notice of Allowability is solicited. To the extent it would be helpful to placing this application in condition for allowance, the Applicants encourage the Examiner to contact the undersigned counsel and conduct a telephonic interview.

Respectfully submitted,



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